REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Rejection of Claims 1-3 Under 35 USC §102(e) in view of U.S. Patent Nos. 6,344,857 (Matono) and 6,593,934 (Liaw)

This rejection is respectfully traversed on the grounds that neither the Matono patent nor the Liaw patent discloses or suggests a gamma compensation process in which, after performing a conventional anti compensation (*i.e.*, *after* compensating for the "compensation" applied to the video signal at the transmission side in order to facilitate transmission), the anti compensated video signal is *further* divided into at least two segments based on the gray level, and various *additional* anti compensation processes are applied to the already anti compensated video signal in each respective segment, including use of a second gamma to increase the gray level of the signal in the range of a first low gray level, as is now recited in claim 1.

Furthermore, with respect to claim 3, the Matono and Liaw patents fail to disclose or suggest use of a third gamma in a range of a second high gray level so as to increase the gray level (or brightness) gradient of the video signal in the range of the second gray level higher than the first gray level, to greatly improve the image quality of a PDP and avoid the false contour from occurring in the range of the first gray level. As a result of the third gamma, a sharp contrast is achieved in the range of the second gray level and a difference between two gray levels in the range of the second gray level is visually distinguishable.

The Examiner will note that the invention involves application of the variety of gray level processes after application of the conventional gamma compensation process, which is applied before segmentation. In other words, the conventional process is applied, then the signal is segmented according to gray level, after which different processes are applied to the different gray level segments depending on the effects of the conventional process on the different segments. Matono, in contrast, segments the signal and then applies a conventional process to

each segment. The compensation makes it easier to apply an appropriate gamma, but does not consider the differential effects of even an appropriate gamma on high and low gray levels.

Instead, the Matono patent discloses use of the same gamma for each gray level segment. Like Liaw, Matono discloses a gamma correction circuit that can be adjusted according to the characteristics of the circuit to which the gamma correction is applied. The gamma correction circuits of Matono and Liaw both apply a single gamma coefficient to a single video signal, with the Matono patent teaching application of the gamma coefficient to segments of the signal, and the Liaw patent teaching that the gamma coefficient may be adjusted to compensate for different display characteristics–with no disclosure of segment a signal or of applying different gammas to different segments of a signal on a particular display. Therefore, even if the teachings of Liaw were applied to the circuit of Matono, since the Liaw patent merely teaches that the gamma coefficient *k* may be adjusted for different types of display (which is already taught by Matono), the Liaw patent could not possibly have suggested modification of the anti compensation of Matono by *additionally performing*, after the initial anti compensation process has been performed, a variety of compensation processes using different gamma coefficients to different gray level segments of the segmented signal, as claimed.

As indicated in the previous response, the process disclosed in the Matono patent performs a single gamma correction (anti compensation) process on the sections of the gamma curve, and fails to disclose or suggest an anti compensation process for a plasma display panel (PDP) in which the video signal is divided into at least two segments based on gray level thereof, and a variety of anti compensation processes are performed on each of the segments, as recited in claim 1; and a plurality of anti compensation processes are performed on the video signal in each respective segment with respect to various gammas, as is now also recited in claim 1, with the smaller gamma being used in the anti compensation process with respect to video signals in the range of the second gray level(s) for increasing the number of gray levels therein.

The Matono patent teaches an anti compensation process for various types of displays, as well as segmenting of the video signal, but there is no disclosure of performing a variety of anti compensation processes ("gamma corrections") on individual segments, much less using different gammas on each segment, as claimed. Instead, a common gamma correction coefficient *k* is applied, using an adder 16, to segments corresponding to eight sections of the gamma characteristic curve, as explained in col. 4, lines 6-11 of the Matono patent. The video signal of Matono is divided into segments, but Matono does not disclose use of different coefficient *k's* to accomplish the variation.

This deficiency is not remedied by the Liaw patent. Instead of being concerned with the problem of false contours resulting from application of the conventional gamma correction process, the Liaw patent is concerned with achieving a gray-scale-to-voltage destination curve that is appropriate for a particular display, by enabling adjustment of the gamma voltages that are applied to the display. There is no teaching of segmenting a signal and applying different gamma coefficients to the signal in order to achieve anti compensation, as opposed to selecting an appropriate gamma to be applied to a particular type of display using a single respective gamma compensation process. Therefore, the Liaw patent does not include any teachings that would have caused the ordinary artisan to modify the gamma correction process of Matono by applying different gammas to each segment. Matono already recognizes the problem of different gamma voltage characteristics of different types of display, and Liaw merely teaches a different circuit for correcting this problem, *without* using segmentation.

On page 3, the Examiner argues that the use of different gamma voltages in relation to different gray levels is conventional in the art. The Applicant does not dispute that varying gamma voltages according to display characteristics is known. However, the invention does not simply involve application of different gamma voltages in relation to different gray levels. It involves application of additional gamma corrections after a gamma correction has already been performed, and after the video signal has been segmented (which in turns occurs after the initial gamma correction).

The invention involves a specific application of gamma voltages, namely anti compensation of a segmented video signal, for which the prior art (Matono) teaches application of a single coefficient *k* to each segment for a particular display. The Liaw patent provides no possible reason for modifying the teachings of Matono to apply different anti compensation processes to different segments of an individual video signal, since the Liaw patent merely teaches variation of gamma for different displays. Because the Liaw patent does not even concern the type of segmented signal anti compensation claimed, Liaw could hardly have suggested, in the absence of hindsight, modification of the anti compensation of Matono to apply different processes and different gamma coefficients to different gray level segments, as recited in claims 1-3.

Consequently, it is respectfully submitted that the claimed invention would not have resulted from the combined teachings of the Matono and Liaw patents, and withdrawal of the rejection of claims 1-3 under 35 USC §103(a) based on the Matono and Liaw patents is respectfully requested.

2. Rejection of Claims 1-3 Under 35 USC §102(e) in view of U.S. Patent Nos. 6,344,857 (Matono) and 6,593,934 (Liaw)

This rejection is respectfully traversed on the grounds that since neither the Matono patent nor the Liaw patent discloses the concept of applying different anti compensation processes to different segments of a video signal, neither could have suggested application of the specific processes recited in claims 4-7, even though the specific processes might be admitted prior art.

In other words, the invention involves a particular application of known processes, namely application of a variety of the known processes to different gray level segments of a video signal, whereas the prior art (Matono) only teaches application of a single process to a video signal, and the Liaw patent merely teaches that gamma voltages can be adjusted for different displays (rather than different segments of a segmented video signal of the type taught by Matono). Neither Matono nor Liaw discloses or suggests application of a variety of different anti

compensation processes after an initial compensation has been performed and the video signal segmented.

More specifically, it is respectfully noted that the prior art does not suggest application of a gamma equal to 2.2 to the brightness equation recited in claim 4. Choosing gamma equal to 2.2, *which happens to be the gamma conventionally used for **CRT** anti compensation,* has the effect of canceling the effect of the conventional gamma characteristic on the image transmitting side. This only becomes obvious once one realizes the effect of the conventional gamma characteristic in the first place, namely poor contrast in the range of high gray level due to an extremely low gray level ***gradient***, so that is difficult or impossible to distinguish between two gray levels (as explained on page 4 of the original specification). Neither Matono nor Liaw considers this problem, so neither would have had any reason to select a gamma of 2.2. To the contrary, Matono teaches a k of 21/32, or 0.66, which is between the conventional 0.45 coefficient and the above-mentioned 2.2 gamma used to compensate for the effect of reduced gray level gradient on the visibility of different gray levels in the high gray level range. In a sense, the claimed invention may be thought of as applying a CRT gamma of 2.2 to sharpen up the higher gray levels of a plasma display after the conventional plasma gamma of 0.45 has been applied.

Since neither Matono nor Liaw recognizes that elimination of gray levels in the low gray level range reduces the gradient and therefore the visibility of different gray levels in the high gray level range, neither Matono nor Liaw could possibly have suggested yet another correction caused by the effect of gradient adjustment using a 2.2 gamma correction with respect to high gray levels, namely the use of a gamma smaller than 2.2 in the low gray level range to increase the gray levels in the low gray level range, as recited in claim 5, the use of gamma equal to 2.2 in the intermediate gray level range, as recited in claim 6, and the further use of a gamma greater than 2.2 in the high gray level range as recited in claim 7, both to improve image contrast.

In summary, none of the references of record, and certainly not the admitted prior art, suggests application of different anti compensation processes involving different gammas to low, intermediate, and high gray level segments of a video signal as claimed. All involve application of a single gamma correction (anti compensation process) to a video signal, the gamma coefficient being adjustable for different types of display, but only one gamma correction coefficient being applied to any particular video signal in a given display. As a result, withdrawal of the rejection of claims 4-7 under 35 USC §103(a)is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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